International University of Africa

Deanship of Graduate Studies

Spectral Study of Flavonoids from Combretum Glutinosum Leaves

A Thesis Submitted in Partial Fulfillment of the Requirements for M.Sc. Degree in Industrial Chemistry

By

Amani abubakr Ebraheem

(B.S.c applied Chemistry; SUST)

Supervisor

Dr. Mahmoud Mohamed Ali

August 2018 - 1438هـ

Dedication

To my mother who have always been a constant source of support and encouragement during the challenges of my whole college life.
To my father for standing beside me.

To my grandmother zeinb,uantMuniera, for allowing me to follow my ambitions throughout my childhood.

To my kind husband he has been my inspiration and motivation for continuing to achieve my dream.

To my kind sister Nahed

To my wonderful children:

To my lovely frinds

Acknowledgement

Praise to his almighty Allah, the compassionate the mercifully for giving me the strength and patience to accomplish this work satisfactorily.

thanks my supervisor to D Mahamoud MohammedAli for his valuable remarks and patience through out the percid of this research, for his guidance and comections, he has all my thanks and appreciate and gratitude.

I would like to thank all of my distinguished professors in the chemistry department of the Faculty of Science at the University of Africa, who have made every effort to guide me and provide me with the references I need.

I would like to thank the Industrial Research and Consultancy.

I thank all those who helped me and assist me to accomplish this research, they are the people of virtue and goodness and thanks.

List of Contents

List of tables

List of Figures

ABSTRACT

In this study Combretum Glutinosum leaves were extracted using ethanol, chloroform, ethyl acetate, n-butanol .The conformatory testes showed up the presence of flavoniods, alkaloids, steroids, Tannins, and glycosids The study focused on the extraction of flavoniods, by thin layer chromatography the research emphasized the presence of flavoniod compound.using analytical spectroscopy such as IR and UV spectroscopy the compound were determined and they my be isoflavone.

مستخلص البحث

تم في هذه الدراسة استخلاص اوراق شجرة الهبيل باستخدام الايثانول ' والكلوروفورم' والايثيل اثتيت' والبيوتانول ومن ثم اخضاع المستخلص بالتجارب التاكيدية اللازمة وتوصلت الدراسة الي وجود الفلافينويدات' القلويدات' والاسترويدات' والجليكوسيدات والتانينات.وركزت الدراسة علي استخلاص الفلافينويدات' وباستخدام كروماتوغرافيا الطبقة الرقيقة تاكدت الدراسة من وجود مركب فلافونويدي.اسستخدم في هذه الدراسة التحليل الطيفى مثل مطيافية الاشعة تحت الحمراء والاشعة الفوق البنفسجية وتم الحصول علي مركب فلافونيدي يمكن ان يكون ايزو فلافون.

Chapter one

1.1 INTRODUCTION

Plants produce an enormous variety of natural products with highly diverse structures. These products are commonly termed “secondary metabolites” in contrast to the “primary metabolites” which are essential for plant growth and development. Secondary metabolites were formerly regarded as “waste products” without physiological function for the plant. With the emergence of the field of chemical ecology about 30 years ago, it became evident, however, that these natural products fulfill important functions in the interaction between plants and their biotic and abiotic environment. They can serve, for example, as defense compounds against herbivores and pathogens, as flower pigments that attract pollinators, or as hormones or signal molecules. In addition to their physiological function in plants, natural products also have a strong impact on human culture and have been used throughout human history as condiments, pigments, and pharmaceuticals [1].

Plants producKingde array of natural products (secondary metabolites). These compounds haveimportant ecological functions, providing protection against attack by herbivores and microbesand serving as attractants for pollinators and seeddispersing agents. They may also contribute tocompetition and invasiveness bysuppressing the growth of neighbouring plant species (a phenomenonknown as allelopathy). Humans exploit natural products as sources of drugs, flavouringagents, fragrances and for a wide range of other applications. Rapid progress has been madeinrecent years in understanding natural product synthesis, regulation and functionand the evolutionof metabolic diversity. It is timely to bring this informationtogether with contemporary advancesin chemistry, plant biology, ecology, agronomy and human health to provide a comprehensiveguide to plant-

derivednatural products.Plant-derived natural products: synthesis, function and application provides an informativeand accessible overview of the different facets of the field,ranging from an introduction to thedifferent classes of natural products throughdevelopments in natural product chemistry and biologyto ecological interactionsand the significance of plant-derived natural products for humans [1].

1.2 Objectives

The objectives of this present study are as follows:

1. To investigate the fractional test of the ***Combretum Glutinosum***crude extract.
2. To Isolation and Identification the Chemical Components of ***Combretum Glutinosum***
3. To analyze the Components of the Isolated Compounds from the ***Combretum Glutinosum*** using IR and UV.